

Please amend claims 1-9 and 22, as follows:

1. (Amended) In a display system that comprises a display screen, a processor for controlling use of the display screen to display information, and a hand held remote control device for communicating user input to the processor, a method of generating a selected user input function on the display screen, the method comprising:

emitting a signal from a first location to a remote control device at a second location, wherein the signal has an incident direction at the second location;

receiving from the remote control device, data corresponding to an angular displacement between the incident direction of the emitted signal and at least one selected axis of the remote control device;

using one or more mapping functions or rules to map the received data in accordance with either (i) a particular task a user is performing, or (ii) a particular region of the display screen to which user input is directed; and

generating the selected user input function on the display screen in response to the mapped data.

2. (Amended) A method as defined in claim 37, further comprising repeatedly:

moving the remote control device to establish a new angular displacement between the incident direction of the signal and the at least one selected axis of the remote control device;

detecting the new angular displacement;

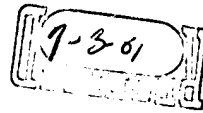
transmitting data corresponding to the new angular displacement to the processor;

using the one or more mapping functions or rules to map the data received from the remote control device; and

generating the selected user input function on the display screen in response to the mapped data.

3. (Amended) A method as defined in claim 2, further comprising filtering the transmitted data to at least partially prevent the selected user input function from being generated on the display screen in response to unintentional movement of the remote control device, wherein the unintentional movement has a magnitude less than a preselected threshold value.

4. (Amended) A method as defined in claim 1, wherein generating the selected user input function on the display screen comprises positioning a cursor on the display screen, and wherein the cursor moves on the display screen in response to changes in the detected angular displacement.



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5. (Amended) A method as defined in claim 4, further comprising selecting a scale factor such that movement of the cursor is selectively proportional to a unit change of the angular displacement.

6. (Amended) A method as defined in claim 5, wherein selecting a scale factor comprises detecting an angle subtended by the display screen from the point of view of the remote control device, and adjusting the scale factor proportionally to the subtended angle.

7. (Amended) A method as defined in claim 37, wherein the step of detecting the angular displacement between the incident direction of the signal and the at least one selected axis of the remote control device comprises detecting a first component of the angular displacement about a first axis and further detecting a second component of the angular displacement about a second axis that is non-parallel to the first axis.

8. (Amended) A method as defined in claim 37, wherein receiving the signal with the remote control device comprises projecting the signal through at least one lens.

9. (Amended) A method as defined in claim 37, wherein receiving the signal with the remote control device comprises projecting the signal through at least one elongated opening in the remote control device.

22. (Amended) A moveable remote control device for use in a display system that includes a display screen and a processor electronically connected to the display screen, the moveable remote control device transmitting to the processor angular orientation information of the moveable remote control device so that a selected user input function may be generated on the display screen, the remote control device comprising:

receiving means for receiving an electromagnetic signal emitted from a remote location;

orientation means for establishing an initial angular orientation of the remote control device, data corresponding to the initial angular orientation being transmitted from the remote control device to the processor;

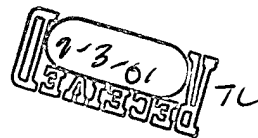
first means for measuring a first component of an angular displacement of the remote control device about a first axis and relative to the initial angular orientation;

second means for measuring a second component of the angular displacement of the remote control device about a second axis and with respect to the initial angular orientation, the second axis being non-parallel with the first axis;

mapping means for mapping data corresponding to the first component and the second component of the angular displacement based on either (i) a particular task a user is performing, or (ii) a particular region of the display screen to which user input is directed; and

transmitting means for sending the mapped data corresponding to the first component and the second component of the angular displacement to the processor.

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Please add new claims 37-62, as follows:

37. (New) A method as defined in claim 1, further comprising the remote control device:

receiving the emitted signal;

detecting an angular displacement between the incident direction of the signal and the at least one selected axis of the remote control device; and

transmitting the data corresponding to the angular displacement.

38. (New) A method as defined in claim 3, wherein the filtering is part of a mapping function.

39. (New) A method as defined in claim 5, wherein selecting a scale factor is part of a mapping function.

40. (New) A method as defined in claim 1, wherein generating the selected user input function on the display screen is independent of the angular position of the remote control device about its central axis.

41. (New) A method as defined in claim 1, wherein emitting the signal comprises at least one of modulating the signal and encoding data into the signal.

42. (New) A method as defined in claim 1, wherein the signal is emitted from the first location to a plurality of remote control devices, the method further comprising:

receiving from each of the plurality of remote control devices, data corresponding to the angular displacement between the incident direction of the emitted signal and at least one selected axis of each remote control device; and

generating one or more user input functions on the display screen in response to the data received from each of the plurality of remote control devices.

43. (New) A remote control device as defined in claim 22, further comprising means for decoding instructions that are encoded in the electromagnetic signal.

44. (New) A remote control device as defined in claim 43, wherein the means for decoding instructions comprises a summing amplifier and a demodulator.

45. (New) A remote control device as defined in claim 43, further comprising processor means for executing decoded instructions.

46. (New) A remote control device as defined in claim 22, further comprising means for setting the remote control to an active state.

47. (New) A remote control device as defined in claim 22, further comprising normalization means to compensate for changes in the apparent intensity of the signal.

48. (New) A computer input system for generating a selected user input function on a display screen based on user interaction with a remote control device, the computer input system comprising:

emitter means for emitting a signal from a first location to a remote control device at a second location, wherein the signal has an incident direction at the second location;

receiver means for receiving from the remote control device, data corresponding to an angular displacement between the incident direction of the emitted signal and at least one selected axis of the remote control device;

mapping means for mapping the received data in accordance with either (i) a particular task a user is performing, or (ii) a particular region of the display screen to which user input is directed; and

processor means for generating the selected user input function on the display screen in response to the mapped data.

49. (New) A computer input system as defined in claim 48, comprising:

means for storing data relating to a reference angular displacement of the remote control device; and

means for comparing the reference angular displacement to the received angular displacement data, whereby an angular movement of the remote control device is determined.

50. (New) A computer input system as defined in claim 49, wherein the selected user input function comprises a cursor positioning function, and wherein a cursor position on the display screen is determined by the angular movement of the remote control device.

51. (New) A computer input system as defined in claim 50, wherein the mapping means includes means for applying a scale factor to the received data such that movement of the cursor is selectively proportional to a unit change of the angular displacement.

52. (New) A computer input system as defined in claim 48, further comprising means for filtering the transmitted data to at least partially prevent the selected user input function from being generated on the display screen in response to unintentional movement of the remote control device.

53. (New) A computer input system as defined in claim 52, wherein the means for filtering is within the mapping means.

54. (New) A computer input system as defined in claim 52, wherein the means for filtering performs at least one of temporal and spatial filtering.



55. (New) A computer input system as defined in claim 48, wherein the computer input system includes one or more remote control devices, and wherein each individual remote control device comprises:

receiver means for receiving the emitted signal;

orientation means for establishing an initial angular orientation of the individual remote control device;

first means for repeatedly detecting a variable first component of the angular displacement of the individual remote control device relative to the initial angular orientation by detecting the incident direction of the emitted signal, wherein the first component of the angular displacement is measured about a first axis;

second means for repeatedly detecting a variable second component of the angular displacement of the individual remote control device by detecting the incident direction of the emitted signal, wherein the second component is measured about a second axis that is non-parallel with the first axis; and

transmitting means for sending data corresponding to the first component and the second component of the angular displacement.

56. (New) A computer input system for generating a selected user input function on a display screen based on user interaction with a remote control device, the computer input system comprising:

an emitter that emits a signal from a first location to a remote control device at a second location, wherein the signal has an incident direction at the second location;

a receiver that detects data transmitted by the remote control device, wherein the received data corresponds to an angular displacement between the incident direction of the signal and at least one selected axis of the remote control device;

a mapping module that comprises one or more mapping functions or rules which may be dynamically selected and applied to the received data, wherein the one or more mapping functions or rules consider either (i) a particular task a user is performing, or (ii) a particular region of the display screen to which user input is directed; and

a processor that generates the selected user input function on the display screen in response to the mapped data.

57. (New) A computer input system as defined in claim 56, further comprising:

an angular position buffer that stores a reference angular displacement of the remote control device; and

an angular displacement calculation module that compares the reference angular displacement to the received angular displacement data, whereby an angular movement of the remote control device is determined.

58. (New) A computer input system as defined in claim 57, wherein the selected user input function comprises a cursor positioning function, and wherein a cursor position on the display screen is determined by the angular movement of the remote control device.

59. (New) A computer input system as defined in claim 58, wherein the mapping module includes a scale factor that is applied to the received data such that movement of the cursor is selectively proportional to a unit change of the angular displacement.

60. (New) A computer input system as defined in claim 56, further comprising a filtering module that filters the transmitted data to at least partially prevent the selected user input function from being generated on the display screen in response to unintentional movement of the remote control device.

61. (New) A computer input system as defined in claim 60, wherein the filtering module performs at least one of temporal and spatial filtering.

62. (New) A computer input system as defined in claim 56, wherein the computer input system includes one or more remote control devices, and wherein each individual remote control device comprises:

a first detector that repeatedly detects a variable first component of the angular displacement of the individual remote control device relative to an initial angular orientation by detecting the incident direction of the emitted signal, wherein the first component of the angular displacement is measured about a first axis;

a second detector that repeatedly detects a variable second component of the angular displacement of the individual remote control device by detecting the incident direction of the emitted signal, wherein the second component is measured about a second axis that is non-parallel with the first axis; and

a remote control device emitter that sends data corresponding to the first component and the second component of the angular displacement to the receiver.